

modulation. A transparent hologram having a high brightness and substantially no absorption in the visible region was thus obtained. A stable image was maintained after removing the protective material.

Example 43

8.5 g of diallylorthophthalate prepolymer ("Daiso DAP Type A" produced by Daiso Co., Ltd.), 10 g of ethylene glycol dimethacrylate ("NK Ester 1G" produced by Shin-Nakamura Chemical Co., Ltd.), 1.5 g of polyarylate ("U-100" produced by Unitika Ltd.) as a solvent-soluble thermoplastic resin, 0.6 g of benzil as a polymerization initiator, 0.2 g of Michler's ketone as a photo-sensitizing dye and 20 g of dichloromethane were mixed at an ordinary temperature to prepare a recording material composition comprising these components.

(2) to (4) A photosensitive plate for recording a hologram was produced and a hologram was copied by conducting the same manner as in items (2) to (4) of Example 1.

A copy thus obtained suffered no coloring, and had a high brightness of diffraction efficiency of about 35% conducting development and fixing.

Example 44

The same procedures as in Example 43 were repeated, except that 1.5 g of polysulfone ("Udel P-1700" produced by Amoco Polymers Inc.) as solvent-soluble thermoplastic resin was used, to produce recording material composition and a photosensitive plate for recording hologram on which a hologram was copied.

A copy thus obtained suffered no coloring, and had a high brightness of diffraction efficiency of about 35% conducting development and fixing.

Example 45

(1) 5 g of diallyl orthophthalate prepolymer ("Daiso DAP, DAPA" produced by Daiso Co., Ltd.) as an allyl-based prepolymer (A), 1 g of an acrylic acid adduct of 9, 9-bis(4-hydroxyphenyl)fluorene glycidyl ether ("ASF400" produced by Nippon Steel Chemical Co., Ltd.) as a radical polymerizable compound (b1), 3.5 g of 3, 3', 4, 4'-tetra(tert-butylperoxycarbonyl)benzophenone ("BTTB-25" produced by NOF Corporation) as a photopolymerization initiator, 0.01 g of a merocyanine-based dye ("NK4795" produced by Nippon Photosensitizing Dye Co., Ltd.) as a sensitizing dye, 4 g of diethyl sebacate ("SDE" produced by Wako Pure Chemical Co., Ltd.) as a viscosity reducing agent (e1) and 6 g of acetone as a solvent were mixed at an ordinary temperature to prepare a recording material composition.

(2) The composition was coated on one surface of a glass plate substrate having a dimension of 60 mm × 60 mm to a thickness of 20 μ m after drying. The solvent was removed from the coated layer under reduced pressure, to produce a recording medium having a two-layer structure comprising the substrate and the recording layer.

(3) The same glass plate as mentioned above was placed to cover the recording layer of this recording medium, to produce a three-layer photosensitive plate for recording a hologram.

(4) An Ar ion laser of 488 nm was split with a beam splitter, angles of each light were changed with a reflector, and both were recomposed to form interference to obtain an interference fringe. The photosensitive plate was placed at a position where this interference fringe